

Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 14875-0154US1	Application No. 10/560,098
		Applicant Taro Miyazaki et al.	
		Filing Date April 28, 2006	Group Art Unit 1643

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	1	11/910,117	08/2007	Igawa et al.			
	2	11/910,128	09/2007	Igawa et al.			
	3	11/916,979	08/2008	Igawa			
	4	5,837,821	11/1998	Wu			
	5	5,877,291	03/1999	Mezes et al.			
	6	6,126,980	10/2000	Smith et al.			
	7	6,132,992	10/2000	Ledbetter et al.			
	8	6,183,744	02/2001	Goldenberg			
	9	6,323,000	11/2001	Briggs et al.			
	10	6,342,220	01/2002	Adams et al.			
	11	6,368,596	04/2002	Ghetie et al.			
	12	6,683,157	01/2004	Briggs et al.			
	13	6,699,686	03/2004	Brocard et al.			
	14	2002/155537	10/2002	Carter et al.			
	15	2004/0091475	05/2004	Tsuchiya et al.			
	16	2005/0130224	06/2005	Saito et al.			
	17	2006/0222643	10/2006	Tsunoda et al.			
	18	2007/0003556	01/2007	Tsuchiya et al.			
	19	2007/0281327	12/2007	Nakano et al.			
	20	2008/0009038	01/2008	Ohtomo et al.			
	21	2008/0206229	08/2008	Ono et al.			
	22	2009/0028854	01/2009	Igawa et al.			

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	23	EP 811 691	12/10/1997	Europe				
	24	JP 8-500979	02/06/1996	Japan				

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							Yes	No
	25	JP11-500916	01/26/1999	Japan			Abstract only	
	26	JP 2002-543822	12/24/2002	Japan				
	27	JP 2004-086682	03/18/2004	Japan			Abstract only	
	28	JP 2003-515323	05/07/2003	Japan				
	29	WO 94/05690	03/17/1994	WIPO				
	30	WO 96/27011	09/06/1996	WIPO				
	31	WO 97/10354	03/20/1997	WIPO			English abstract	
	32	WO 00/069462	11/23/2000	WIPO				
	33	WO 01/036486	05/25/2001	WIPO				
	34	WO 2004/019966	03/11/2004	WIPO			English abstract	
	35	WO 04/111233	12/23/2004	WIPO			English abstract	
	36	WO 05/056604	06/23/2005	WIPO			English abstract	
	37	WO 2005/107784	11/17/2005	WIPO			English abstract	

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	38	ARNDT et al., "Generation of a highly stable, internalizing anti-DC22 single-chain Fv fragment for targeting non-Hodgkin's lymphoma," <i>Int. J. Cancer</i> , 107(5):822-829 (2003)
	39	BOWIE et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions," <i>Science</i> , 247:1306-1310 (1990)
	40	CLACKSON et al., "Making antibody fragments using phage display libraries," <i>Nature</i> , 352:624-628 (1991)
	41	COCHLOVIUS et al., "Treatment of human B cell lymphoma xenografts with a CD3 x CD19 diabody and T cells", <i>The Journal of Immunology</i> 165:888-895 (2000)
	42	DEJONGE et al., "In vivo retargeting of T cell effector function by recombinant bispecific single chain Fv (anti-DC3 x anti-idiotypic) induces long term survival of the murine BCL1 lymphoma model," <i>J. Immunol.</i> , 161(3):1454-1461 (1998)
	43	DESPLANCQ et al., "Multimerization behaviour of single chain Fv variants for the tumour-binding antibody B72.3," <i>Protein Engineering</i> , 7(8):1027-1033 (1994)
	44	EIJSSINK et al., "Rational engineering of enzyme stability," <i>Journal of Biotechnology</i> , 113:105-120 (2004)

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	45	EWERT et al., "Biophysical properties of human antibody variable domains," <i>J. Mol. Biol.</i> , 325:531-553 (2003)
	46	EWERT et al., "Stability improvement of antibodies for extracellular and intracellular applications: CDR grafting to stable frameworks and structure-based framework engineering," <i>Methods</i> , 34:184-199 (2004)
	47	EWERT et al., "Structure-based improvement of the biophysical properties of immunoglobulin V _H domains with a generalizable approach," <i>Biochemistry</i> , 42:1517-1528 (2003)
	48	GRUBER et al., "Efficient tumor cell lysis mediated by a bispecific single chain antibody expressed in <i>Escherichia coli</i> ," <i>Journal of Immunology</i> , 152:5368-5374 (1994)
	49	JÄGER et al., "Folding and assembly of an antibody Fv fragment, a heterodimer stabilized by antigen," <i>Journal of Molecular Biology</i> , 285:2005-2019 (1999)
	50	KIPRIYANOV and LITTLE, "Generation of Recombinant Antibodies," <i>Molecular Biotechnology</i> , 12:173-201 (1999)
	51	KIPRIYANOV et al., "Bispecific CD3 x CD19 diabody for T cell-mediated lysis of malignant human B cells," <i>In. J. Cancer</i> , 77:763-772 (1998)
	52	KIPRIYANOV et al., "Bispecific tandem diabody for tumor therapy with improved antigen binding and pharmacokinetics," <i>Journal of Molecular Biology</i> , 293:41-56 (1999)
	53	KORN et al., "Recombinant bispecific antibodies for the targeting of adenoviruses to CEA-expressing tumour cells: a comparative analysis of bacterially expressed single-chain diabody and tandem scFv," <i>The Journal of Gene Medicine</i> , 6:642-651 (2004)
	54	KRIANGKUM et al., "Bispecific and bifunctional single chain recombinant antibodies," <i>Biomol. Eng.</i> , 18(2):31-40 (2001)
	55	KUMAR et al., "The second PDZ domain of INAD is a type I domain involved in binding to eye protein kinase C. Mutational analysis and naturally occurring variants," <i>J. Biol. Chem.</i> , 276(27):24971-24977 (2001)
	56	LE GALL et al., "Effect of linker sequences between the antibody variable domains on the formation, stability and biological activity of a bispecific tandem diabody," <i>Protein Engineering Design & Selection</i> , 17(4):357-366 (2004)
	57	LIU et al., "Functional interactions between arginine-133 and aspartate-88 in the human reduced folate carrier: evidence for a charge-pair association," <i>Biochem. J.</i> , 358:511-516 (2001)
	58	MACK et al., "A small bispecific antibody construct expressed as a functional single-chain molecule with high tumor cell cytotoxicity," <i>Proc. Natl. Acad. Sci. USA</i> , 92(15):7021-7025 (1995)
	59	MAITY et al., "Equilibrium unfolding of dimeric and engineered monomeric forms of Cro (F58W) repressor and the effect of added salts: evidence for the formation of folded monomer induced by sodium perchlorate," <i>Archives of Biochemistry and Biophysics</i> , 434:93-107 (2005)
	60	MALLENDER et al., "Construction, expression and activity of a bivalent bispecific single-chain antibody," <i>J. Biol. Chem.</i> , 269(1):199-206 (1994)
	61	MENG et al., "The evaluation of recombinant, chimeric, tetravalent antihuman CD22 antibodies," <i>Clinical Cancer Research</i> , 10:1274-1281 (2004)
	62	NGO et al., "Computational Complexity, Protein Structure Prediction, and the Levinthal Paradox," <i>The Protein Folding Problem and Tertiary Structure Prediction</i> , Merz, Jr. et al. Editors, Birkhauser Boston, 433-506 (1994)

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	63	NIEBA et al., "Disrupting the hydrophobic patches at the antibody variable/constant domain interface: improved <i>in vivo</i> folding and physical characterization of an engineered scFv fragment," <i>Protein Engineering</i> , 10(4):435-444 (1997)
	64	NISHII, "CD22 antibody therapy," <i>Current Therapy</i> , 20:47-50 (2001) (English translation included)
	65	NOHAILE et al., "Altering dimerization specificity by changes in surface electrostatics," <i>PNAS</i> 98(6):3109-3114 (2001)
	66	ORITA et al., "A novel therapeutic approach for thrombocytopenia by minibody agonist of the thrombopoietin receptor," <i>Blood</i> , 105:562-566 (2005)
	67	RAJAGOPAL et al., "A form of anti-Tac (Fv) which is both single-chain and disulfide stabilized: comparison with its single-chain and disulfide-stabilized homologs," <i>Protein Engineering</i> , 10(12):1453-1459 (1997)
	68	ROUSCH et al., "Somatostatin displayed on filamentous phage as a receptor-specific agonist," <i>Br. J. Pharmacol.</i> , 125:5-16 (1998)
	69	SAL-MAN et al., "Arginine mutations within a transmembrane domain of Tar, an Escherichia coli aspartate receptor, can drive monodimer dissociation and heterodimer association <i>in vivo</i> ," <i>Biochem. J.</i> , 385(1):29-36 (2005)
	70	SEGAL et al., "Bispecific antibodies in cancer therapy," <i>Current Opinion in Immunology</i> , 11:558-582 (1999)
	71	SHIMBA et al., "Comparative thermodynamic analyses of the Fv, Fab* and Fab fragments of anti-dansyl mouse monoclonal antibody," <i>FEBS Letters</i> , 360:247-250 (1995)
	72	SHIRE et al., "Challenges in the development of high protein concentration formulations," <i>Journal of Pharmaceutical Sciences</i> , 93(6):1390-1402 (2004)
	73	TAN et al., "Contributions of a highly conserved V _H /V _L hydrogen bonding interaction to scFv folding stability and refolding efficiency," <i>Biophysical Journal</i> , 75:1473-1482 (1998)
	74	VAN DEN BURG et al., "Selection of mutations for increased protein stability," <i>Curr. Opin. Biotechnol.</i> , 13(4):333-337 (2002)
	75	VIEILLE et al., "Hyperthermophilic enzymes: sources, uses, and molecular mechanisms for thermostability," <i>Microbiology and Molecular Biology Reviews</i> , 65(1):1-43 (2001)
	76	WELLS, "Perspectives in Biochemistry," <i>Biochemistry</i> , 29(37):8509-8517 (1990)
	77	WHITLOW et al., "An improved linker for single-chain Fv with reduced aggregation and enhanced proteolytic stability," <i>Protein Engineering</i> , 6(8):989-995 (1993)
	78	WORN et al., "Stability engineering of antibody single-chain Fv fragments," <i>J. Mol. Biol.</i> , 305:989-1010 (2001)
	79	ZHU et al., "Remodeling domain interfaces to enhance heterodimer formation," <i>Protein Science</i> , 6:781-788 (1997)
	80	U.S. EXAMINER LORRAINE SPECTOR, USPTO Restriction Requirement in U.S. App. Ser. No. 10/551,504, mailed June 27, 2008, 6 pages
	81	FISH & RICHARDSON P.C., Response to Restriction Requirement dated June 27, 2008 in U.S. App. Ser. No. 10/551,504, filed September 29, 2008, 13 pages
	82	U.S. EXAMINER LORRAINE SPECTOR, USPTO Restriction Requirement in U.S. App. Ser. No. 10/551,504, mailed December 16, 2008, 5 pages

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	83	FISH & RICHARDSON P.C., Response to Restriction Requirement dated December 16, 2008 in U.S. App. Ser. No. 10/551,504, filed December 23, 2008, 14 pages
	84	U.S. EXAMINER LORRAINE SPECTOR, USPTO Non-Final Office Action in U.S. App. Ser. No. 10/551,504, mailed April 15, 2009, 35 pages
	85	JAPANESE PATENT OFFICE, International Search Report for App. Ser. No. PCT/JP2004/018506, mailed March 22, 2005, 3 pages
	86	JAPANESE EXAMINER YOSHIKO KUWAHARA, International Preliminary Report on Patentability for App. Ser. No. PCT/JP2004/018506, 8 pages
	87	EPO EXAMINER ROBERT RANKIN, European Search Report for App. Ser. No. EP 04 82 0316, dated July 17, 2008, 3 pages
	88	JAPANESE PATENT OFFICE, International Search Report for App. Ser. No. PCT/JP2006/306800, mailed May 16, 2006, 4 pages
	89	JAPANESE EXAMINER YOSHIKO KUWAHARA, International Preliminary Report on Patentability for App. Ser. No. PCT/JP2006/306800, dated October 3, 2007, 6 pages
	90	JAPANESE PATENT OFFICE, International Search Report for App. Ser. No. PCT/US2006/306803, mailed July 11, 2006, 4 pages
	91	JAPANESE EXAMINER YOSHIKO KUWAHARA, International Preliminary Report on Patentability for App. Ser. No. PCT/US2006/306803, dated October 3, 2007, 6 pages
	92	JAPANESE PATENT OFFICE, International Search Report for App. Ser. No. PCT/JP2006/311575, mailed September 26, 2006, 3 pages
	93	JAPANESE EXAMINER MASASHI HONDA, International Preliminary Report on Patentability for App. Ser. No. PCT/JP2006/311575, dated December 11, 2007, 5 pages
	94	JAPANESE PATENT OFFICE, International Search Report for App. Ser. No. PCT/JP2006/311600, mailed August 29, 2006, 2 pages
	95	JAPANESE EXAMINER YOSHIKO KUWAHARA, International Preliminary Report on Patentability for App. Ser. No. PCT/JP2006/31160, dated December 11, 2007, 8 pages

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